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The Common Black, or Yellow, Locust.

BY JOHN R. SCHMIDT.

BETTER known by some as "honey"-locust is one of our most fragrant and beautiful honey-plants. Unfortunately it is seldom found in large numbers in any one place, and the nectar, which is borne more abundantly than in some other honey-plants which receive more attention but possessing less desirable qualities, seldom reaches the supers, and therefore this desirable honey-yielder is little known to the bee-keeping fraternity.

The tree is of very rapid growth, and blooms profusely when only a few years old. The specimen from which the sprig was taken to be photographed was planted seven years ago, then only a small sapling less than four feet high, and about three-fourths of an inch in diameter. Now, the thickest part of the trunk is five inches thru, and it was necessary to use a 12-foot ladder to reach some of the lowest branches. This will give some idea as to its rapid growth.

The blossoms make their appearance about the second week in May, and are of a creamy-white color, hang in clusters like so many bunches of grapes, and are intensely fragrant. The odor is so very pronounced that it often causes one to have a headache when the blossoms are smelled for any length of time, or when they are present in large quantities in a closed room.

Bees work upon these blossoms from morning until night, and the hum, when one is under a tree in full bloom, almost resembles that of a swarm clustering among the branches. Several times I have stopt and examined the tree to see if such were not the case.

The time of bloom which I have already mentioned make it a most desirable tree for the bee-keeper in this section, as it comes when there is nothing for the bees to work upon, and continues to bloom until the last of May, when white and sweet clover open our main honey-flow.

This tree, if planted in groves like linden or basswood, would rapidly mature and yield a good crop of honey each year. I do not remember ever seeing the bees fail to work upon it. These are its good points. Now I will mention some of its faults, as much as I know:

1st. The trees are always worm-eaten; that is, worms are always present in the wood, and they eat the very life out of the trees. This causes many dead branches and much dead wood among the trees when they become old.

2d. It is said they are very susceptible to lightning, and many people refuse to have them on their premises for this reason. Personally, I do not think them more so than the oak, but I have seen many large trees which were struck.

3d. Owing to the above faults, many trees soon lose

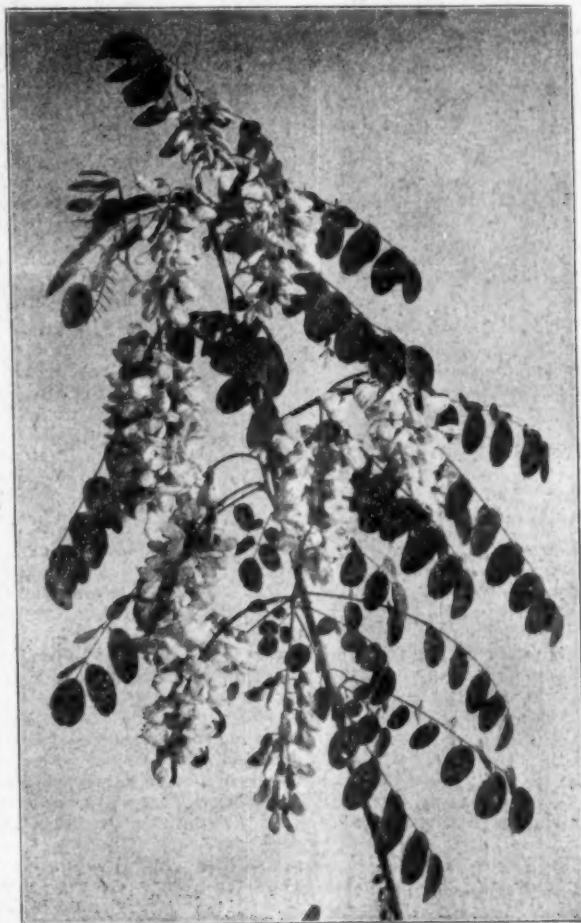
their symmetrical appearance and beauty, and therefore are not so attractive in appearance as the linden and some others.



The Food of the Larval Bees.

BY PROF. A. J. COOK.

THE great difference between animals and plants consists in the fact that animals must digest their food, while the plant takes a food that needs no digestion. By digestion we mean the changing of food so it can be



Locust Blossoms.

absorbed or taken thru an organic membrane. We call this osmosis. A good definition, then, of digestion, is that it renders the food osmotic. It is often defined as the process of solution, or dissolving the food. This is not correct. Some substances are not osmotic, like the albumen of an egg or blood, altho these are liquids. These substances, then, must be digested or they can not be absorbed. There are other liquids of like nature. Some liquids, like cane-sugar, while readily soluble need digestion. Thus without doubt cane-sugar must be digested before it is absorbed into the blood. The bee does this with the cane-sugar of nectar, and thus changes it into the reducing-sugar of honey. When we eat honey the bee has done our digestion for us, but when we eat cane-sugar we must do it for ourselves.

The lowest branch of animals, the protozoa, have but a single cell, and are thus in structure like the yolk of an egg. These, of course, have no digestive canal, but they have a wonderful power of taking their food into themselves and digesting it, and thus are as truly animals as are we ourselves. The little microscopic amoeba is one of these protozoas. Nearly all other animals possess an alimentary or digestive tube. I say nearly all, for some animals, like the tape-worm, have, in the economy of their lives, found places where their food is already digested, and thus need no digestive canal, so they have none. Doubtless they once had one, but thru disuse it was snatcht away. If we wish to keep our organs vigorous and intact we must use them.

The coral animals have a digestive canal, but only have a mouth-opening. The animals above the coral branch, if they have an alimentary canal at all, have a complete one; that is, a tube with an opening at each end. Most animals with a complete alimentary canal have the tube differentiated into mouth, oesophagus, stomach, small and large intestines. The bee is no exception to this statement. Thus in the bee we have a mouth, oesophagus, two stomachs, small and large intestines. The mouth of the bee, like our own, receives the salivary liquids, which, in their case, unlike ours, are the main digestive liquids. The oesophagus of the bee is small, and conducts from mouth to stomach. The honey-stomach is just above the true-stomach, and this is doubtless the seat of all honey-digestion. That is, the cane-sugar of nectar is changed to the reducing-sugar of honey, which is a mixture of dextrose and lævulose in this honey-stomach. This honey-stomach, then, is not comparable to the crops in chickens. The crop is simply a store-house for food, while this honey-stomach is really a true-stomach, in that digestion is done in it.

Succeeding the honey-stomach is the long, bent, true-stomach of the bee. This is considerably larger than the honey-stomach, and in this the digestion of the albuminoids or of the bee-bread or pollen takes place. There are many short tubes attacht at both ends to the true-stomach. These were once thought to act as does the liver of higher animals. But they are now known to be organs of excretion, and so answer to our kidneys. Indeed, the structural difference is not great, for our kidneys consist of a great number of small tubules. In the bee these tubules, instead of being mast together, as in the kidneys, are separate. We know that these are kidneys in function, as urea has been found in them. These are often called malpighian tubules, which word is strangely misspelt in the last edition of the "A B C of Bee-Culture." The small and large intestines are probably little more than conduits for the waste of fecal matter. Doubtless digested material not absorbed in the stomach may be taken into the blood from the intestines.

There are very large glands in the head and thorax of all worker-bees. The upper head-glands of the thorax empty in the common tube just at the base of the ligula or tongue of the bee. There is little doubt that this secretion furnishes ferment which digests the cane-sugar of nectar. Its position and the large extent of the glands make this almost certain. The further fact that we know of no other source for this digestive liquid adds to the argument. It is marvellous how much the bee does at one time. It gathers honey, gathers pollen, and is at the same time hard at work digesting the honey in the honey-stomach. And added to this is its hard labor in flying from flower to flower, and in carrying its load of pollen to the hive. Bees have been found to make a mile in five minutes, altho loaded with nectar.

The lower head-glands empty on the side of the mouth. They look like a string of onions, and are very ample. Cheshire is assuredly mistaken in stating that these glands furnish the food for the larvæ. I have tried experiments which I shall speak of later, which entirely disprove this

statement. Their real function is, without doubt, to digest the pollen or bee-bread, changing this into chyle, which process takes place in the true-stomach.

As we have said, the honey-stomach is the reservoir in which the honey is conveyed to the hive, and also the digestive cavity where the cane-sugar of nectar is changed to the reducing-sugar of honey. At the lower end of the honey-stomach is the little globular stomach-mouth, a curious little organ, which undoubtedly serves to obstruct the pollen-grains which are taken in with the nectar from this liquid as the bee is gathering or flying to the hive. If we quarter an apple and imagine the quarters slightly separated yet united at the peel by elastic rubber strips, we will have a close copy of this stomach-mouth. The inside of the quarters should be covered with long hairs which point downward. These quarters, as the bee is flying, are constantly opening and shutting. The nectar passes in between them, carrying the pollen-grains. As they close they pass the honey back into the honey-stomach, but the hairs hold on to the pollen-grains, and so they are constantly past thru the true-stomach where, as we have already seen, they are digested. The bee also takes the bee-bread from the cell into its mouth, mixes this with the secretion from the lower head-glands, already described, and then passes this into the true-stomach. Only the nurse-bees, or younger workers, possess these lower head-glands in full development. Thus the nurse-bees for the most part digest the proteid food.

A loose tube extending from the lower part of the stomach-mouth reaches down into the true-stomach. Thus unless the honey-stomach is drawn up this serves as a valve, preventing any regurgitation of the food from the true-stomach. But in case the bee wishes to regurgitate this chyle, as the digested pollen is called, it simply raises the honey-stomach, drawing this valve-like tube up. Thus it may or may not act as a valve at the pleasure of the bee.

The drones and queen have not the lower head-glands, and thus can not digest pollen. Thus the nurse-bees have to feed not only the larvæ, but also the drones and queen. The drones and queen are possesst of the other glands. Indeed, they need them as the honey is not fully digested or changed into reducing-sugar, and the drones and queen take honey for food, and so need to digest it in part. Even a part of this digestion, as we have already seen, is performed by the worker-bees, as they digest the nectar *en route* to the hive.

As before stated, Cheshire argues that the secretion from the lower head-glands forms the food of the larval bees. As stated above, I have proved as have others, that this is an error. The nurse-bees digest the pollen, and probably add more or less honey, and jelly or chyle is the food of the larval drones and queen. We know that charcoal is entirely non-osmotic, that is, it can not be absorbed. Therefore if we feed charcoal to an animal it would never pass into the blood. I fed honey with finely pulverized charcoal mixt with it, to a colony of bees in confinement. The bees were not only feeding common brood, but also adding the royal jelly to queen-cells. I found the charcoal in the royal jelly, as also in the cells with the ordinary brood. This proves that this food is chyle, and so regurgitated from the true-stomach. If Cheshire were correct, this charcoal must have past thru the walls of the stomach and intestines into the blood, and again thru the walls of the lower head-glands to be mixt with the secretion of these glands. We know that this could never take place. As the larvæ food is chyle, this charcoal must of course pass with the chyle as it is regurgitated from the true-stomach.

Dr. de Planta has shown that the chyle fed to the queen-larvæ is quite different from that fed to drones and worker-larvæ. If this were as Cheshire holds, a secretion, we could not explain this difference. If, on the other hand, it is chyle, we can certainly see this, by adding more or less honey, its nature can be readily changed, as it must be by the nurse-bees.

A few years ago I announced the fact in the bee-journals, that honey is digested nectar. There was a great cry from the bee-men, fearing that their product might be injured by such statement. They had no need to be thus frightened, for the truth never hurts any one. Indeed, the bee-men should be glad to know and herald forth this fact. I feel sure that honey is a safer and better food than cane-sugar, and just for this reason, that the digestion is partly performed by the bees. There are few acts in all the culinary processes that are so neat and unobjectionable as is this wonderful transformation in the honey-stomachs of the "pets of the hive." If, as sometimes stated, cane-sugar is

not so safe a food as honey—and I think there is much reason for this opinion—then it is because of this previous digestion of the honey by our little industrious friends.
Los Angeles Co., Calif.



Spring and Early Summer Bee-Management.

Written for the Northeastern Ohio and Western Pennsylvania Convention,
BY MRS. E. J. CORNWELL.

WHILE thinking of the subject assigned me, it seemed that I must know how the bees had been prepared for winter the previous fall. I will consider that they have been wintered on the summer stands, in chaff hives, with plenty of stores of their own gathering in old combs, each hive weighing not less than 35 pounds. If we did our duty last fall and saw that they went into winter quarters with abundance, there is no need to trouble them in the spring, aside from cleaning the dead bees away from the entrance, and off the bottom-board, which may be done without disturbing the live bees.

Don't fool too much with your bees in the spring, especially if the weather is cold. Better not touch them at all, except when it is pleasant and warm enough for bees to be flying. If you lift out the combs you can easily chill the brood. Don't be in too great a hurry to take away the winter packing—better to leave it till settled warm weather. It is just as important to have them warm early in the spring as in winter, for they have commenced brood-rearing, and that requires warmth.

If you are not certain that your bees have plenty of stores to last them thru, go to the hive the first warm day that the bees are flying, and look for sealed honey along the top of the combs. If you find it there, you need not look further; but if no sealed honey is in sight, you would better lift out a comb, and if they have not plenty give them a comb taken from a stronger colony last fall, or some of those partly filled sections that were not good enough for market. If you can't give them honey, feed a syrup made from granulated sugar. Bees can not thrive upon scant supplies. Be sure that they never lack stores, for when stores run low the queen will stop laying, giving you a weak colony later on when it should be strong.

In spring, when but little honey is coming in, is the time to build up the colonies and have them strong for the honey-flow by and by. In the production of honey, either comb or extracted, the most essential thing is to have good, strong colonies at the right time. In this section the first honey and pollen is from the soft maples and willows; then along thru the blooming of the different fruits; and we often have swarms issue the last of May, owing to the large flow of honey during the blooming of the apple orchards. White clover is our main dependence for surplus honey.

The boxes for surplus honey should be put on at the first appearance of white clover blossoms, which may be seen about the middle of June, and we may look for sealed honey about the last of the month. Remove it as fast as finished, and give new boxes to be filled; and from then on watch closely, both the boxes and the combs to be extracted, and remove them as fast as capt, and return new boxes and empty combs.

Do not be content to fill an upper story once, to be extracted in the fall, but remove the honey from the combs as fast as capt. It is important to attend to this at the proper time, for the honey-flow will not wait for other work to be done first. To make the apiary a success, it is important that the work should be done on time.

There are only three things necessary to successful bee-culture, viz.: "One should know what to do, how to do it, and then do it on time."

It is a matter of wonderment that so few farmers keep bees. Every farmer ought to keep bees on his farm for the proper fertilization of his crops; but aside from this he should keep bees for the honey they gather. Honey is the purest and most healthful sweet known; while it is considered something of a luxury it should be on every table, and certainly the farmer can gather it much cheaper than he can buy it. Thousand of pounds of this delicious sweet go to waste annually because there are not bees enough to gather it. Any farm, no matter how small, has room for a few colonies of bees.

Bees are great public benefactors in the fertilization of flowers, and day by day investigation reveals the importance of the honey-bee to plant life. In Germany it is estimated that the value of each colony of bees in the matter of fertilization alone is equal to ten dollars.

Ohio alone has 50,000 colonies, which produce annually 1,300,000 pounds of honey. You can readily see that the honey-bees contribute not a little to the value of the agricultural products of the State.

There is no doubt but that love for any pursuit is desirable if the best results are to be obtained, yet success is possible if the work be well done, even if doing it be not so agreeable to one's taste. But of all occupations bee-keeping leads to enthusiasm, even if not so pleasing at the start, and the more the little details are attended to the more is the interest aroused in the mystery within the hives; and if the little details are well attended to, and on time, there is no branch of farming that will pay better for the labor and money expended.

Ashtabula Co., Ohio.



Bees on the Farm—Their Advantages.

Written for the Stark Co., Ill., Farmers' Institute,

BY DR. C. C. MILLER.

YEARS ago it was a common thing to see a group of bee-hives standing near the farm-house, and the annual "taking up" of the heaviest and lightest was an event of interest, not only to the immediate family, but to the friends and neighbors less fortunate in the possession of the frugal honey-gatherers. At the present day one may travel many miles without even the sight of a hive. Keeping bees has become to a greater or less extent a business by itself, there being a comparatively small number of bee-keepers, each of them, however, keeping a considerable number of colonies of bees, ranging from 50 up into the hundreds, and in a few cases into the thousands.

This falling into the hands of specialists might be a good thing if they were evenly distributed over the country, but it results in a double loss when the apiaries are so distributed that any considerable portion of the country is out of the reach of the bees. The double loss comes from the double duty the bees perform. Very likely, if the average farmer were asked what double performance is expected of the bee, he would reply, "Making honey and stinging."

A magnified conception of the amount of stinging done is generally entertained. I get my full share of stings when working with the bees, perhaps an average of five a day throughout the season. A million bees may be flying in the course of the day, and I would rather that the five that sting me would turn their attention in some other direction; but think of the nine hundred and ninety-nine thousand, nine hundred and ninety-five that *don't* sting me!

No, stinging is not an important occupation of the honey-bee, not one bee in five thousand ever stinging a human being. A much more important occupation than stinging—aye, more important even than honey-gathering—is the fertilization of the flowers. If no apiary is kept within two or three miles of your farm, you will be wise to have at least one colony of bees, even if you are so afraid of them that you must enclose them with an eight-foot fence. If an important apiary is located near you, then it is unwise to attempt keeping bees. The ground is already occupied, and the ground may be overstocked with bees as well as with cattle.

Time does not allow to go fully into a statement of the work performed by bees in the way of fertilization, but mention may be made of one of the commonest fruits—the apple. The stamens are on the same apple-blossom with the pistil, and at first thought one would conclude that there would be no trouble about fertilization, for the pollen could hardly help falling from the stamens upon the pistil. But Nature seems to guard carefully against in-breeding, and in this case the pistil is no longer in a receptive condition when the pollen is ripe. In other words, the stamens and pistil of a blossom are not ripe at the same time, so no blossom is ever fertilized by its own pollen, but the pollen must be carried in some way from some other blossom, and the honey-bee is the chief performer in this service.

You are familiar with the two kinds of blossoms on cucumbers, squashes, and other vines; false and true blossoms they are called. Before it is in full bloom, enclose one of the true blossoms in netting close enough to prevent a bee getting thru. It may be so coarse that the wind might easily blow into it pollen from one of the staminate or false blossoms, but if no bee can enter it will blast.

If then, no bees are within two miles of you, it will pay you well to keep bees, even if you never get an ounce of honey from them.

A few words about honey: Physicians say that much of the trouble in kidney diseases, and diseases of the stom-

ach and intestines, comes from the sugar that is eaten, the difficulty being that the cane-sugar must be changed after it is eaten, but honey does not need the same change, hence is a more wholesome article. Children have an intense love for honey, and it is for their health that such craving be satisfied. Give them bread and honey: unless wrongly trained, they do not care for butter with it. Honey is much cheaper than butter, better for them.

Some say, "Honey never agrees with me." Neither would many another article agree with you if you should make a pig of yourself and eat a lot of it after taking a full meal. Let honey be eaten in moderation as part of the regular meal, and you will easily become accustomed to it. In Germany it is not an infrequent thing to hear of people of great age attributing their long life to the use of honey.

McHenry Co., Ill.



Some Difficulties in Connection with Foul Brood

Written for the California State Bee-Keepers' Convention,

BY THOS. WM. COWAN.

THOSE who have had very much to do with foul brood will readily admit that, for the average bee-keeper, there are many and serious difficulties in connection with this disease which baffle him, and can be overcome only by an intelligent mastery of the subject. The disease is allowed in many cases to break out and spread, without the slightest precaution being taken, sometimes thru ignorance, carelessness, or indifference on the part of the bee-keeper, to the detriment of others keeping bees in the vicinity. In consequence of this it is no wonder that foul brood is spreading, and that there is a demand among intelligent bee-keepers in all countries for legislation to prevent the industry from being destroyed. To be brief and concise, I will mention only some of the difficulties we have to encounter to make people understand the conditions under which the disease exists, or to study its etiology.

1. That foul brood is terribly contagious, and that as great care should be exercised in dealing with it as with smallpox or cholera. What these diseases are to man, foul brood is to bees.

2. That foul brood is a germ disease, and is produced by the presence of a minute organism called *Bacillus alvei*, which exists in two different forms. In the earliest stages of its existence it is in the form of a rod, and is usually then termed *bacillus*, to distinguish it from the latter stage, or *spore*, as it is then commonly called.

3. That there is a great difference between these two stages, and as both may exist in the hive at the same time, the treatment that would destroy the one would have no effect upon the other.

4. That *Bacillus alvei* is in form rod-shaped; and each rod, as it attains full growth, splits in two, each of these taking up an independent existence, and going thru the same process; and as two generations can be reared within one hour, the same rate of progression being kept up by each individual, it is not astonishing that foul brood spreads so rapidly.

5. That under certain conditions bacilli have the power of forming spores which are analogous to seeds or plants, and are endowed with wonderful vitality, being able to endure adverse influences of various kinds, without injury so far as their germinating powers are concerned. Boiling water and freezing will kill bacilli, but not their spores. In the same way chemical reagents which readily destroy bacilli have no effect upon the spores, unless given in such strong doses as would kill the bees. (It is extremely difficult to make people understand this great difference in the vitality of bacilli and their spores, and it is here that the great danger arises.)

6. That spores coming in contact with suitable nutrient material have the power to germinate into bacilli, after the lapse of long periods; and according to Dr. Klein, one of our best authorities, there is no reason to assume that these periods have any limit. That is why the disease sometimes breaks out in districts where bees have not been kept for years.

7. That experience has shown with foul brood, as in all epidemic diseases, the weak, sickly, and badly nourished are attacked and become centers of infection to others; and so rapidly does the disease spread by contagion that, unless precautions are taken, a whole neighborhood may become affected in a short time.

8. That colonies suffering from foul brood are usually weak, and this induces bees from other hives to rob them of

their honey, and thus carry off the germs of the disease along with their ill-gotten gains.

9. That combs which have contained foul brood retain the spores. The queen lays eggs in the cells, and the workers deposit their honey and pollen in them. Both honey and pollen in this way become vehicles for the transport of the disease to the larvae in the process of feeding by the nurse-bees. The workers, in endeavoring to clean the combs, scatter the spores, which may also be driven out of the hive by the current of air produced by the fanners at the entrance in their endeavor to rid the hive of foul odors.

10. That, if on examining the combs, to all appearance healthy, with brood compact and larvae bright and plump, we find here and there a cell with young larvae moving uneasily, or extended horizontally instead of being curled up, and changing to a pale yellow color, we at once detect the first symptoms of foul brood. The germ at this stage being only in the rod form, the further progress of the disease can be arrested by feeding the bees with syrup, to which a suitable antiseptic drug is added. The bees then generally remove the dead larvae.

11. That apart, however, from experienced bee-keepers or trained experts, very few are fortunate enough to detect the disease at such an early stage, or effect a cure so easily.

12. That when the combs have irregular patches of brood, with sunken and perforated cappings to the cells containing the putrid, coffee-colored, ropy mass inside, the treatment should be:

a. If the colony be weak, destruction of bees, combs, frames, and quilts, together with thorough disinfection of hives, is by far the best course to pursue. We thus destroy the spores, and so remove the source of infection.

b. If, on the contrary, the colony be still strong, the bees may be preserved by making an artificial swarm of them, and feeding them on medicated syrup for 48 hours, after which time they can be placed in a clean hive furnished with sheets of foundation, and fed with medicated syrup for a few days longer. The combs, frames, and quilts are burned, and the hive disinfected by being either steamed or scrubbed with boiling water and soap, and then painted over with a solution of carbolic acid; and when the smell has disappeared, the hive is ready for use. (The bees are allowed to remain 48 hours in the empty hive, for by that time the honey that they may have taken with them, and which might contain spores, will have been consumed, and the diseased bees will have died off.)

13. That in his endeavors to rid his apiary of foul brood, the bee-keeper must also raise to its proper standard the lowered vitality of the bees which enabled the disease to get a footing. This he must do by keeping his bees strong with young and prolific queens, good wholesome food, cleanliness, and proper ventilation.

14. That the bee-keeper may himself be a cause of spreading foul brood by indiscriminately manipulating, first diseased and then healthy hives, without taking the precaution to disinfect himself or his appliances. Clothes, appliances, and hands should be washed with carbolic soap, and other articles disinfected by spraying with some suitable disinfectant.

These are only a few of the many difficulties, and only the fringe of the subject has been touched upon; but sufficient has been said to show that, unless great precautions are taken, it is very difficult to get rid of the disease. It thus becomes obvious that those who fail to realize the danger of infection, and who will not take proper means of ridding their apiaries of foul brood, or of preventing its introduction, are a real danger to the industry.



Relieving the Pressure on the Queens.

BY HARRY LATHROP.

I PRESUME a good many bee-keepers are engaged these days in doing the same work that I am, that is, relieving the pressure on the queens, by giving them more room. A year ago at this time bees were destitute of stores in this locality, and the combs became dry and devoid of honey or brood. Now the problem is, How to prevent restricting of the queens by reason of there being so much honey and pollen in the combs.

To-day I have been going over one of my yards, adding extra stores in all cases where it seems necessary, adhering to my rule not to take from strong colonies in order to build up the weaker, but giving them plenty of room and allowing them to become as strong as they may.

I do not always pursue the same course in giving extra

room. In some cases I give the queen access to the added set of combs; in others I remove one or two combs containing the most honey from the brood-chamber, place them in the super that is to be added, replace by the same number of empty combs in the brood-chamber, and keep the queen below with an excluder. This will give more room, retard, if not prevent, swarming, and insure a strong colony, as all the combs in the brood-chamber will be full, or nearly full, of brood as soon as the queen lays in the two empty combs given. And the two removed and placed in the upper story will contain more or less brood that will hatch and augment the already strong colony.

A little later, when the white honey season has well begun, I will reduce many of these two-story colonies (I use 8-frame hives), and give them one or two supers of sections in place of the upper stories. Swarming may, or may not, result. If swarming does result, I will manage to keep the working force together. The upper stories removed will be placed on weaker colonies (or on any colony that I think will not do good comb-honey work) for the production of extracted honey.

FULL SHEETS OR STARTERS IN SECTIONS—SEPARATORS.

I am using full starters of extra-thin foundation, but have not as yet tried bottom starters. It seems to me that putting foundation in sections is the most tedious work a bee-keeper has to do; and, as far as my experience goes, it can not be delegated to cheap help. One of the largest producers of fancy comb honey in this State will not trust this work to any one but himself. He produces straight combs in 7-to-the-foot sections without separators. I get part of my crop without separators, and for part I use the regular 1½-inch section with separators, and don't know which is the better.

Well, bee-keepers, I hope to see you all as members of the National Bee-Keepers' Association, at Chicago, next August. Green Co., Wis., May 29.



The "Old Reliable" seen thru New and Unreliable Glasses.
By E. E. HASTY, Richards, Ohio.

HOUSE-APIARY AND WINTERING.

The house-apiary of Notre Dame, as we see it on page 273, looks substantial, and made to endure. You see an institution is not expected to terminate with one man's life. And how happy is the honey market of a college! The youths who are so sincerely interested in the Commons Hall three times per diem will not haggle over the question whether the product of the apiary is estimated at 5 cents a pound or at 50 cents a pound. Down she goes all the same. Instructive circumstance that the house has wintered its bees well for six years, the hives, but not the house, being packed. I'll venture to guess that that Kentucky 11-year-old queen was in three successive volumes unbeknownst to the keeper. And so Mr. Chrysostom would like to go on a crusade against cellar-wintering and the loose-hanging frame! Well, as the bumpkin said of Niagara, "What's to hinder?" He'll find the Saladins on the other side a smiling, and not very belligerent, lot.

GETTING THE MOST INTO AN EXCLUDER.

Say, Grimes, it's not to get the most out of it, but to get the most *into* it, that's the main thing anent the excluder. Most of us can get out somehow or other whatever gets in. Interesting to see that so able an operator as Grimes succeeds with communication to the super only around the outside, all the middle being thin board. This critic conjectures that some strains of bees will stand that all right, and that some will not stand it at all. Page 275.

METHODS OF CONTROLLING INCREASE.

The method of controlling increase given by John R. Schmidt, page 275 (double every spring and unite down one-half every fall), I think to be well up to the high water mark of our present knowledge. Still, we shall not be entirely satisfied with our "hoss" and his training until we can

make him whoa. Moreover, once in awhile there will come a destroying winter that will sweep away two-thirds of the consolidated one-half; and then we will regret that every good colony was not allowed to try its luck. Mr. Schmidt's method of repeatedly moving the parent colony from one side to the other of the new one seems to be good—or would be if it did not require such close attention.

And Mrs. Snyder, she is one of a small army at work on another controlling scheme—let the colony become two, and then wheedle both into one again without waiting for winter. This scheme subdivides naturally into two schemes, the perambulate-'em-round method, often called the Heddon method, and the put-'em-up-stairs method, which we have immediately under consideration. Interesting to see that Mrs. S. finds newly hatch bees, emerging under unnatural conditions, to perish in large numbers from hunger, and from being hustled by their elders. Page 276.

BEES ROBBING—FEEDING-WHISKEY NONSENSE.

Mr. Dadant doeth well to remind the greenhorns (whose legs and arms are sticking out of the world's windows all around) that a man cannot take a colony of bees and "sic 'em on" to his neighbor's bees, as if they were dogs. They would go for a colony in his own yard first. Sorry he didn't say right out that the idea of feeding bees whiskey to make them rob must be considered rank nonsense until some proof of its success is shown. May succeed to the extent of getting the inebriated colony robbed by a sober one adjacent. And robbing once begun may run a long course. Page 276.

POINTS ON SPRAYING FRUIT-TREES.

Mr. Holtermann makes two excellent points about the spraying question. If a spray kills leaves (and it sometimes does), the essential parts of a flower are more tender than leaves, and therefore more liable to destruction—the horticulturist biting his own nose off, as it were. And the man who would fain spray in full bloom might profitably receive by mail a card with the spraying law printed on it. Page 277.

ONION HONEY FOR WINTER STORES.

I hope Mr. McBride has it a little too rank. I still want to think that a big field of onion bloom might not *always* prove a curse in a barren season. Doubtless the hives smelt bad; but perhaps the practical result *might* have been the same had the bees stockt up for winter on some other second-rate bloom. Page 286.

THE BELGIAN HARE AUXILIARY.

Happy the bee-man be's of late,
He's found a boom for his ebbing fate;
Yea, found for his biz a running-mate;
It's the Belgian hare, which the world shall ate,
All born and bred in an onion-crate.—Page 292.

Still something within me cries out that starting an auxiliary business is the first step towards abandoning the bee-business altogether.

WHERE TO PLACE BAIT-SECTIONS.

Place bait-sections in the center to get reluctant or weak colonies started quickly, but around the corners if to encourage even work thruout the case. Guess that is about correct, Mr. Aikin. But I thought I was almost the only one contrary enough to put in baits with old honey in them—and lo, he steals my dirty trick! Shake, brother! The ups and downs of super work do not exactly correspond with the gains and halts of the honey-flow, as shown by the scale colony. Yes, that's so, too. Page 289.

PUSSY-WILLOW AS A NECTAR-YIELDER.

I think that the statement made on page 295, that the pussy-willows yield no honey, should be taken with considerable allowance and margin for different localities and weather. Very likely it is not common for it to yield enough honey to increase visibly the amount on hand in the hives.

EMPTY BOTTLES FOR HIVE-STANDS.

Set the hive on empty brandy bottles, eh? Four, with the necks driven into the ground. Some of the brethren will think the suggestiveness of that a little too strong. Dr. Miller, if you don't drink brandy you can use beer-bottles. Also, those who have got onto the trick of using oil instead of butter can use oil-bottles—a relief to find some use for them for which they do not have to be cleaned. But still, my preference is strong in favor of having things fixt so bees cannot cluster underneath a hive. If you do use bot-

ties, crowd the vacant space full of sawdust or cinders just the same.

Our comrade was also going it strong when he stuck to his efforts to have queens get to laying up-stairs until he had lost an even 50 queens—with no success to balance. Page 290.

TWO KINDS OF PRICES.

"Decide what prices ought to be, and then stand by those prices." Page 295. That sounds like the millennium—but that isn't here yet. Alas, in the noddles of bee-folks, all the same as other folks, the "price that ought to be," and the highest price that can be extorted from the buyer, get swapt in the cradle, somehow.

ROBBER-BEES AND BALLED QUEENS.

On page 297, that quotation from a foreign bee-paper, about the foolishness of thinking that robber-bees ball a queen, is probably all right in the main. Robbers are indeed there for honey—not for reginacide—but perchance no one interferes, and after awhile the honey is gone, and the hive is filled with a miscellaneous crowd largely new comers, who are like a city mob, "the more part know not wherefore they are come together." Who wants to guarantee the queen's life, then? Not I. And I doubt whether mysterious balling comes as often from young alien bees, as Mr. Mulor thinks. More than half the time her own children do it, I suspect. They think wrongly that she needs superseding. More strictly speaking, they don't think at all; but it is part of their duties to supersede when there is little young brood and little scent of fertility in the hive. Unfortunately, these same lacks come about in famine times without the queen's being to blame, and they are unable to discriminate.

THAT CALIFORNIA COMB FOUNDATION IMPROVEMENT.

If Mr. Vogeler's patent wrinkle concerning foundation proves to be of decided value he'll have a lovely time keeping possession of it—it is so easily done—just a brush and some melted wax. Easy to see that natural comb in process of construction always has a rim at the mouth of each cell. This rim is steadily moved upward by pinching. But I opine that side-walls will have to be higher than we usually see in foundation before rims can be brusht on. Page 297.

VALUABLE "SMASH" HONEY IN CANAAN.

Another peculiarity of that Canaan honey of Connecticut, which you overlookt, Editor York, is that producing it in brood-comb and recovering it from the smash of a tree makes it worth 20 cents a pound. Page 297.



CONDUCTED BY

DR. C. C. MILLER, Marengo, Ill.

[The Questions may be mailed to the Bee Journal office, or to Dr. Miller direct, when he will answer them here. Please do not ask the Doctor to send answers by mail.—EDITOR.]

What to do with Frames of Comb and Honey.

Geo. H. Adkins, (on page 348) should not think of melting up the combs left by those 44 colonies that died, but should bend himself to the task of having them all occupied by bees before the summer is over. If they are kept in a cool, dry cellar, worms will make progress in them very slowly. A damp cellar will do if a dry one is not to be had, and will prevent progress of the worms just as well, but the combs are more likely to be moldy. Occasionally the combs may be lookt over, and wherever the web of a worm is seen the worm can be dug out with a wire-nail. Under each of the six colonies a hive full of combs can be put, and it will be all the better if the bees are obliged to pass down thru the lower hive to find an exit. After the bees have had this hive-full of combs for a few days, perhaps for a week, another hive-full can be put between the lower story and the one containing the colony.

When the first swarm issues, or is made artificially, use for it a hive full of combs that have been cleaned up by the bees (a swarm is likely to object to being put on unclean combs), and a few days later this swarm can have a hive full of combs put under to be taken care of, and later another. In this way, as increase goes on, you can have an additional number of combs cleaned up and kept clean, and if the original 6 be increast to 17, all your combs can be in the care of the bees. Even supposing the original 6 becomes only 13, in which case all would be likely to be quite strong—you can put not only two stories of combs under the colony, but you can put a story over the colony.

I have had 3 hive fulls of combs taken care of in this way: The 3 stories were piled over the colony, and from the colony was taken a frame of brood with adhering bees to put in the upper story. This had the effect to oblige the bees to traverse all the stories in going from the lower story to the brood in the upper. A hive full of combs could also be put under the colony, thus making the pile 5 stories high.

That keen-eyed observer, E. E. Hasty, albeit he claims not to see as well as he would like, hints on page 342 a fear of infantile death in the 5-story arrangements. Mr. Hasty, no doubt the matter could be arranged to that effect, but as a matter of fact my bees have taken good care of the brood in these upper stories.

C. C. MILLER.

Young Bees Flying—Width of 10-frame Hive—Langstroth's Book.

1. When young bees take their first flight, do they not run up the side of the hive before flying, just like robbers do?
2. What is the width of a 10-frame dovetailed hive?
3. Is there much difference between the editions of "Langstroth on the Honey-Bee" of 1862 and the present one revised by the Dadants?

OHIO.

ANSWERS.—1. Not generally so much "up the side of the hive" as on the alighting-board. Then they fly circling with their heads toward the hive, and a novice sometimes thinks they are robbers.

2. 14 and $\frac{3}{4}$ inches, inside.

3. A great difference.

Bees Killing Each Other—Brood Died—Italianizing—Sowing for Honey.

I have one colony of Italians that kill each other. They seem to be diseased in some way. Some of them vary in size and color, some being as black as coal. They just fight and kill each other at the entrance of the hive. They were all right early in the spring, and were the prettiest Italian bees I ever saw. Is it bee-paralysis? What ought I to do with them? I had a colony affected in that way in 1898, but they are all right now.

2. I have a young swarm that (most of) the brood died about the time it was two-thirds grown, and the bees would carry it out. It looks very much as if it had starved. It is not ropy, and looks very white except on its abdomen, which looks dark. I took it away from the bees and gave them some more combs. What is the matter? What is the remedy?

3. I have 22 colonies of bees, the most of them blacks, and I want to Italianize them. Can I divide the Italians into 2-frame nuclei and rear queens that will be all right? If so, when will be the best time? Any information about queen-rearing will be appreciated. I have tried dequeening a colony and supplanting them with eggs to rear a queen, but it takes some time and does not give a well-mated queen every time; besides, the whole colony loses too much time. I think that by rearing several queens in small hives I can test them before I introduce them.

4. Will buckwheat do well to sow after wheat? We harvest about June 1st.

5. Will sweet clover do well this far South? GA.

ANSWERS.—1. Very likely it is bee-paralysis, and you can only hope it will disappear as it did before. Many remedies have been given, but so far nothing that seems reliable.

2. It looks like starving, and, if so, all is no doubt well by this time. Still, so much trouble is coming lately from new diseases that one cannot but feel uneasy, and if the trouble continues it might be well to consult Dr. Howard or Mr. McEvoy, who are experts in such matters.

You cannot rear good queens without their costing something. You can divide a colony into a number of small

nuclei and let each start its own cell and rear its own queen, but I wouldn't take such a queen as a gift. Don't think of having cells started in anything but a strong colony and leave them there at least until they are sealed. Better not give a cell to a nucleus until within a day or two of the time for the queen to emerge. If you want to rear several queens, it will pay you well to have Doolittle's book on queen-rearing. In the meantime here is a plan you may take to start a few: Build up your best colony strong by giving frames of hatching brood from other colonies, unless it is already very strong. Not sooner than a week after giving the last frame of brood, take away the queen with one or two frames of brood with adhering bees, and put in a hive on a new stand. Ten days later put this hive with the queen back on the old stand and take away the queen with queenless bees. Make nuclei from the contents of this hive, putting one of the nuclei (the weakest) on the stand from which the queen has just been taken. Put two frames of brood in each nucleus, and let each nucleus have at least two good-looking cells. If the cells are bunched on one or two combs, you must cut them off and fasten on the combs that need them, using a common wire-nail to fasten them on. Do not leave a cell on the bottom of a frame, but cut it off and fasten where it will be sure to be kept warm by the bees. If you gave sufficient brood from other colonies to bring your best colony up to 20 frames of brood or more, you will have no trouble in starting 10 or more nuclei.

4. It may do well unless too late, and some farmer in your locality who has tried it could tell better about it.

5. Sweet clover will probably do well with you, and is perhaps the best thing to sow specially for bees.

A Queenless Colony.

As I was going past my neighbor's place he called me in to see a colony of bees. They were good and strong, but they were rearing all drones, not a worker among them. They had a queen nearly hatched. Will the queen be any good? They have no queen alive with them.

COLORADO.

ANSWER.—It is possible that a played-out queen had been laying drone-eggs almost entirely, but among the few worker-eggs one had been used in a queen-cell, in which case the young queen will be all right. More likely the queen-cell "nearly ready to hatch" contains only a drone, and will never hatch. The chances are many to one that the best thing you can do is to break up the colony.

Bees Affected With Foul Brood.

I have a colony of bees in which there is a number of combs half full of dead brood. The caps are sunken, and the brood is coffee-colored. When I stick the point of my pocket-knife into a dead larva, it draws out in one thread about an inch. Some time ago the bees began to cluster out, and I raised the front of the hive about one-third inch. Shortly after came on a cold spell, and as the dead brood is mostly in the front of the hive, I thought they might be chilled.

1. Does the "back presentation" always accompany foul brood?

2. If more brood keeps on dying, so that I am sure it is foul brood, what course would you advise me to pursue?

MICHIGAN.

ANSWER.—1. If by "back presentation" you mean the young bees are in their cells wrong end foremost, it may be said that it does not always accompany foul brood.

2. I don't believe I should wait to be any more sure about it, but would at once burn up the whole business, or bury it beyond the hope of resurrection. Better get Dr. Howard's book on foul brood, from the American Bee Journal office, by sending 25 cents.

Young Brood Hatching and Dying.

I am in trouble with my bees, and would like to know what is wrong with them. As fast as the young brood hatches they go out and die. I have 60 colonies, and two weeks ago they were nearly ready to swarm; to-day they are no better than when I put them out. I have been 5 years in the business, and never saw the like before. They are not starving, as they have honey. All drone-brood cappings I

shaved off, and let the bees carry out the larvæ. I did that this year for the first time. I would like to know if that would cause the trouble. What would be good for it?

CANADA.

ANSWER.—From the description given it is impossible to tell what is the trouble. It is not likely that shaving the drone-brood has anything to do with it. You do not say whether it is confined to one colony, or how many. Possibly it is spring dwindling, altho rather late for that. Possibly poison may have something to do in the case. It is to be hoped that by this time they have recovered without further loss.

Affected With Bee-Paralysis.

I have a colony of bees that have something ailing them. They crawl out of the hive, and are dragged out by the other bees, and they look as if they had been varnished, and somewhat swollen. They crawl over the ground, and have a tremulous motion of the wings; they seem to be unable to fly. What is it? Is the disease contagious? What will cure them? The colony has swarmed, and both old and new are affected alike.

INDIANA.

ANSWER.—Bee-paralysis. No reliable cure seems to have been found, but as far north as Indiana the disease generally disappears without doing much damage, and does not appear to be contagious.

Buying Pure Extracted Honey.

How can I be sure, in buying extracted honey, that it is not adulterated? Where could I learn how to analyze it? I produce comb honey, but I buy quite a good deal of extracted for some of my neighbors who prefer it.

N. J.

ANSWER.—One of the best ways to be sure of buying pure extracted honey is to buy of an honest producer, or an honest dealer who says he knows the honey is pure. Unless you expect to handle large quantities of honey it is doubtful whether it would be worth while to be your own analyst. You can get honey analyzed by the chemist connected with your State University, and perhaps learn the process from him.

Perhaps Bee-Paralysis.

I have 3 colonies that act as if there was some disease working on them. The bees crawl out of the hive and are not able to fly, and the abdomen is black. They crawl off in the grass and die. What is the matter, and how can I get rid of it? All the rest of the apiary seem to be healthy and all right.

WASHINGTON.

ANSWER.—From your description it is probably bee-paralysis, and unfortunately no sure remedy is known. In the North it generally disappears of itself, but in the South it is a bad scourge. Very likely yours will not do any great damage.

Using Drawn Combs for Swarms.

As I am considerably short of surplus combs, and have a large amount of foundation to draw out, and can give only about two combs to each swarm in the brood-chamber (when hiving bees), would you put the two drawn combs in the center, filling up with foundation? or would you put one comb in each, outside?

ONTARIO.

ANSWER.—I believe I should do neither, but put the two combs together at one side of the hive. If the combs are in the middle, or one at each side, there is more chance for the bees to bulge the old combs into the foundation. With the two combs together at one side, they could do no more than to bulge into one side of one frame of foundation, and might not do that.

Dr. Miller's Honey-Queens are offered as premiums, on another page, for sending us new subscribers to the American Bee Journal. The offer is limited to our present regular subscribers, and the queens are to be mailed in rotation, beginning about June 10th, so first come first served. Look up a new subscriber, send in his name with \$1.00, and we will enter your order for a Dr. Miller Honey-Queen.



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NOTE—The American Bee Journal adopts the Orthography of the following Rule, recommended by the joint action of the American Philological Association and the Philological Society of England:—Change "d" or "ed" final to "t" when so pronounced, except when the "e" affects a preceding sound. Also some other changes are used.

To Kill Grass and Weeds About Hives, salt is quite commonly used. F. Greiner says in *Gleanings in Bee-Culture* that he has had some unpleasant experience with it, that if stock finds it there there will be no end of trouble, and much mischief may be done in a little time. Instead of salt he has used a solution of carbolic acid, but seems to prefer a solution of sulphate of copper, a pound to one or two gallons of water. Editor Root replies:

"The sulphate-of-copper solution, I have no doubt, will do the work very thoroly; but will it do it as cheaply as an application of salt? It is our practice to buy a barrel of common rock salt, which is sufficient to take care of an apiary of 300 or 400 colonies for two or three years. Once or twice a year we sprinkle a very little salt around each entrance. Very often one application each year will answer, provided there are not too many rains, so as to start up the grass again."

The Variation in Honey-Yield seems to be considerable in more than one direction. There is alfalfa—one of the finest honey-plants in the world, according to a multitude of witnesses in several of the States of the West. But it is of no value whatever, according to the testimony of the few who have observed it in places east of the Mississippi. A difference in place or conditions makes all the difference between a valuable and a worthless plant for nectar. So it is with many other plants. Some, however, seem to do well everywhere. Sweet clover is a fair example.

The value of a plant also varies with the season. Some

seasons white clover is an utter failure, altho blooming bountifully. Some plants vary greatly with the season in one locality, and almost not at all in another locality. In some locations buckwheat may be counted a success nine times out of ten, but in others a failure nine times out of ten.

With all this in view, it is not strange that there is conflicting testimony as to honey-plants. Lately one of the bee-editors express doubt whether bees got anything but pollen from dandelion. Mr. Davenport's report of 2,000 pounds of dandelion honey in one season settles the matter for at least one locality. A difference of testimony may come from the fact that in one locality a plant may be abundant, and scarce in another locality. If a man had a single plant of white clover, he might find it little visited by the bees, but would appreciate its value in the same place when acres were in bloom.

Another reason for variation lies in the fact that in one locality a certain plant may be the only kind in bloom, while in another locality it is entirely overshadowed by another and a better honey-yielder. Prof. Lazenby rates gooseberry rather low, but in another place it is highly prized, perhaps because no other plants are yielding at the same time.

The study of this subject is an interesting one, the limits of which are not easily reacht.

Drone-Cells vs. Dipt Cups.—H. L. Jones says in *Gleanings in Bee-Culture*: "I have repeatedly tried dipt cells and drone-comb cells in equal numbers on the same stick, and almost invariably got better results from the drone-comb." Editor Root stands up for the Doolittle cups, saying that their queen-breeder, Mr. Wardell, objects to new-fangled plans so long as he gets good results with plans; that he knows *just how to work*. In a postscript, however, he says he is surprised to find that Mr. Wardell has been trying the drone-cells, and speaks favorably of them. But Mr. Root insists that the Doolittle cups are larger, stronger, and look more like peanuts.

Queen-Rearing is the special topic of the May Bee-Keepers' Review. Mr. H. E. Hill tells how he has cells built so as to be easily separable. Eighteen little square blocks are cut from a piece of section-box, and on each of these a queen-cell cup is fastened, each block being slid in a groove in a supporting slat, so the whole 18 are supported on the one slat somewhat after the manner of movable block letters sometimes used in signs.

Mr. H. D. Burrell emphasizes the importance of rearing queens from a good mother, considering the working qualities of her progeny the first requisite, and beauty the last. All the workers should show three yellow bands, and hardiness in wintering, gentleness, comb-building, and large, uniform size of workers, should be considered in the order named. Drone-rearing should be encouraged in a few choice colonies, and supplant in others. He believes in strong colonies for queen-rearing, and the Doolittle plans. Not every one, however, would approve making cell-cups of a mixture of beeswax and rosin.

Mr. W. H. Laws, from a professional queen-breeder's stand-point, prefers for queen-rearing a frame half the size of the Langstroth frame, or about 9½ inches square. He makes these from Langstroth frames already occupied, by sawing off the projecting ends of the top-bar, then sawing thru the middle of the frame, comb, brood, and all, and nailing a top-bar on the raw edge. Thirteen of these small frames occupy one story of a hive, and two such stories make a full colony. Five of them are used for a nucleus. Whatever be the size of frame used, if queens are to be

reared thruout the season, he thinks success can not be attained without having full colonies on the same kind of frames used in the nuclei.

Mr. W. H. Pridgen furnishes the prize article, which occupies (including illustrations) nearly nine pages. Mr. Pridgen is a genius. He has carried to great perfection the producing of Doolittle cell-cups, making them by wholesale so rapidly that some one with the proper apparatus should furnish them ready-made at a comparatively low price. Probably Mr. Pridgen is the man for this. One way of making them grinds them out with a crank! The forming-sticks project from the circumference of a wheel, and revolving the wheel allows each stick to dip in order in the melted wax. He goes into full details of the queen-rearing business, and any one intending to rear queens for the market will find this one article worth much more than a year's subscription to the Bee-Keepers' Review.

The Dr. Miller Honey-Queens.—Owing to the fact that Dr. Miller is receiving orders for queens which he can not fill, and also to avoid possible disappointment, he sends the following for publication:

MR. EDITOR:—To save disappointment on the part of some who have written me ordering queens, I desire to say that I have no queens at disposal, having engaged them all to the publishers of the American Bee Journal. I hope no more will send orders or money to me, as I can only fill orders that come thru the American Bee Journal.

In reply to some who have asked that advance notice be given when a queen is to be sent, I may say that in all cases notice will be sent a day in advance of mailing the queen.

I am a little afraid that some will be disappointed in getting queens that are not handsome, nor the mothers of yellow bees. They are bred for work, and not for color. Some will be as good as the stock from which they are bred, and no doubt some will fall much below. Those who get untested queens must take the chances. The only thing I can be entirely sure about is that the mother of the queen sent out has proved to be the mother of workers that have given unusually good results in their performance.

C. C. MILLER.

When it is remembered that the main requirement of bees to-day is that they shall gather much honey, rather than be noted principally for their beauty of color or purity of blood, we have no doubt those who get a Dr. Miller queen will be well satisfied. The only fear we have is that he may not be able to rear them fast enough to meet the demand.

The Doctor expected to have begun to mail the queens on advance orders before this number of the Bee Journal is sent out.

A Honey-Bee's Load.—A member of the American Bee Journal's family writes us as follows on this subject:

"That report of Prof. Lazenby, on page 336, is a valuable contribution to our bee-literature, and he is not justified in saying his observations are not important in themselves. He is perhaps the first who has said that bees do not collect both honey and pollen on the same trip, and it is to be hoped that others will confirm or refute his conclusions. Some of his conclusions confirm the saying: 'Bees never do anything invariably.' He says, 'Strawberries are infrequently visited by bees.' If he had been in this region at the time of strawberry-bloom he might have said: 'Bees work busily upon strawberries.' They were at work on strawberries and raspberries at the same time, altho they were more plentiful on the raspberries. There were perhaps twice as many bees on the raspberries as on the strawberries; certainly not eight times as many, as the Professor's table shows.

"In view of the fact that an item is at present going the rounds of the papers (not the bee-papers) to the effect that a bee carries a load three times as heavy as the weight of its own body, it is interesting to note that Prof. Lazenby makes it only one-twelfth as much, or one-fourth as much as its own weight. But I can not figure it out so large as that. Taking the Professor's figures, the average weight

of an outgoing bee is .079 of a gram, and its weight is .094 as it returns with a load of honey. This, he says, leaves .022 as the average honey-load, or 27 percent of the average weight of the bee. I figure the difference to be .015 gram, or 19 percent of the weight of the bee, or less than one-fifth its own weight. Is there something wrong in my figuring, or is there something askew in the figures of our good friend in Ohio?"

There certainly seems to be discrepancy somewhere, and probably the best thing will be to ask Prof. Lazenby to kindly help us out of the tangle.

Hauling Extracting-Combs Home Instead of Honey.

—R. C. Aikin is a revolutionist. No one has before hinted that he had any right to haul home combs full of honey from an out-apiary, said combs to be extracted and then returned. But that is exactly what he has been doing, as related in the Progressive Bee-Keeper. He objects to extracting at the out-apiary, because the extractor, etc., must be hauled out, the "etc." including all the vessels to hold the honey. It is troublesome to have a place to extract the honey without the chance of being greatly troubled by robber-bees some of the time. If unripe honey is thrown out, as will almost surely be the case, it is immediately canned or barreled to the detriment of the good name of the producer. So he does all his extracting at home, having arrangements looking toward securing the honey in the best and ripest form. His extracting-chambers hold 40 to 45 pounds when full. Of these he has 25 to 50 extra, with which he starts with one horse to the out-apiary, and he gives the particulars as follows:

"In the morning I drive to the apiary with 25 extras, take off an equal number of full ones, and put the empties in their place. If it is a time when robbing will not trouble, the full ones are just set about the yard wherever taken off, sometimes set singly and sometimes in piles of from two to four, but always as open and airy as possible. The combs are not shaken singly, but the bees are mostly smoked down and the chamber taken off without removing a comb from it. The first thing is to get these chambers all off so the bees will be leaving them for home, and while this is going on do such other work as I have to do in the yard.

"When about ready to start home I load the chambers, and if there are still bees in them the disturbance of loading, and when in the wagon the excitement and hum of the many disturbed and lost bees realizing they are away from home and queen, causes them rapidly to leave the combs.

"When all is loaded, I put a canvas over the horse, covering head, ears and all complete, hitch to the wagon and start off. As soon as out of the yard, if no fighting bees are about, the canvas is pulled off the horse and we move leisurely toward home, and as we go the remaining bees continue to leave the honey, and before out of range of the yard, very few bees are left in it. In this way I go out three miles, take off a load of honey and drive home and into the honey-house before dinner. My house is constructed with a driveway right into the building alongside of the honey-rooms, and the wagon can be driven in head first or back in. The wagon stands in this driveway when not out on trips, and the honey can stay in the wagon as long as I please till I get ready to unload, and is free from robbers. Also I can load the chambers that have been extracted and are to go out again at any time, and the wagon is ready to hitch to when I am ready.

"I anticipate that many will say, 'Why do you haul those combs back and forth? Why not extract at the yard and save so much hauling?' I have been asked that many times. With just as much propriety might I ask, Where is your thinker and reasoner? If I do not haul out a set of combs empty and back a set full, I should have to haul out and back barrels, kegs or cans to put the honey into, and all the extracting machinery besides. Which will make the most hauling, the machinery and cans or the super and combs? The honey must be hauled whether in barrels or combs. At home the extractor is all ready set, the uncapping-box is there, the strainer, too—in fact, everything is in place and ready for business, and not a robber-bee nor flies."

The Premiums offered this week are well worth working for. Look at them.

FOR SALE!

50 Dovetailed bee-hives, 8-frame, 1 1/4-story, of the G. B. Lewis make; 10 in flat, 5 in woven boxes that were never opened—just as they came from the factory; 10 set up and painted two coats of white, but not used; 30 set up and painted white and used one year only, and partly filled with comb; supers filled with sections and foundation starters. I will sell as many as any one wants, for 80 cents each, f.o.b. at Roseland, Nebr. For particulars write to

GUS. BOURG, Roseland, Nebr.
24Alt Please mention the Bee Journal.

Belgian Hares

A Few
BABIES
at \$3.00
per pair.

24Alt **G. L. REIDER, Rome, N. Y.**

Lone Star Queens

For June, from imported mothers, or Goldens, 65 cents for Untested; \$1.00 for Tested.

24Alt **G. F. DAVIDSON & SONS, Fairview, Wilson Co., Tex.**

IF YOU WANT THE

BEE-BOOK

That covers the whole Apicultural Field more completely than any other publisht, send \$1.25 to Prof. A. J. Cook, Claremont, Calif., for his

Bee-Keepers' Guide.

Liberal Discounts to the Trade.



Here we are to the front
for 1900 with the NEW
CHAMPION CHAFF-HIVE,

a comfortable home for the bees in summer and winter. We also carry a complete line of other SUPPLIES. Catalog free. **R. H. SCHMIDT & CO. Sheboygan, Wisconsin.**

BEE-SUPPLIES!

Root's Goods at Root's Prices—**POUDER'S HONEY-JARS** and everything used by bee-keepers. Prompt Service—low freight rate. Catalog free. **WALTER S. POUDER, 512 Mass. Ave., INDIANAPOLIS, IND.**

Please mention Bee Journal when writing.

CHEAP FARM LANDS

Located on the Illinois Central R.R. in

SOUTHERN ILLINOIS

And also located on the Yazoo & Mississippi Valley R.R. in the famous

YAZOO VALLEY

of Mississippi—specially adapted to the raising of

CORN AND HOGS.

Soil Richest IN THE World.

Write for Pamphlets and Maps.

E. P. SKENE, Land Commissioner,
Ill. Cent. R.R. Co., Park Row, Room 413,
24A24t **CHICAGO, ILL.**

Please mention Bee Journal when writing.



Bee-Industry Extensive There.

Bees in this vicinity wintered with but little loss, but are in light condition as to stores, and have been slow in breeding up. Those who have not fed enough to stimulate breeding still have light colonies, but they will build up very rapidly as alfalfa is now blossoming, and promises a good flow of honey. The bee-industry is quite extensive in this valley, and, as a rule, very profitable. **F. E. BENEDICT, Otero Co., Colo., June 4.**

Honey Crop Almost a Failure.

I am in a mountainous section of country—one of the best locations in this part of the State.

We had a fine, open winter, and the hills were green all thru it. The early rains began in October, 1899, and lasted until May, 1900. As much as 22 inches of rain must have fallen, but the honey-crop will be almost a failure, as we have had very little honey so far, and there was a frost on May 25th. All of the flowers (principally sage) bloomed during the fine weather early in the season. We have ball sage and blue sage, but no white. There is some black sage about 8 or 9 miles from my apiary.

There is very little fruit around here—possibly about five acres—but my bees got honey from blossoms somewhere. They would have to go five or six miles to get it, proving that bees will go that far for honey. The honey is of a fine flavor, but is not clear.

We expected a good season, but it is a failure so far. We may get some honey later on, as bees work here off and on until October. I have been in the bee-business for 20 years, and never yet failed to get some honey.

T. KEATING.

Santa Clara Co., Calif., May 28.

A Happy Bee-Fever Patient.

If Blunk ever catches Dr. Miller and George York—well, they would better try to get that gun from Doolittle. Why? Well, it was those chaps who inoculated me with a terrible dose of bee-fever over two years ago, and when they had the patient where he could not rest easy for a moment, then along came Gleanings in Bee-Culture and also began to prescribe. Will the patient ever be cured? I think not, but he must take their remedies the rest of his days. One good thing for the patient is that he appears to relish their medicines.

The good book says, "Charity covereth a multitude of sins." It is my opinion that charity can be applied in various ways. Now, I won't say that those men are sinners, but if they are, I think their act in inoculating me with the fever has created a happiness within which I enjoy (a mild way of putting it), and their act was a charitable one, as I look at it.

In 1899 I increased from 5 colonies to 12, and got 500 pounds of comb honey. We had eaten it all by the holidays.

The Queen Crank

Is before the readers of this Journal with a petition for orders for as fine Queens as he has ever been able to rear. They are being, and have been for some weeks, reared in triple-decker 10-frame hives, from choice Golden and Three-Band Mothers, in a Golden yard. The Bee-Keepers' Review, of Flint, Mich., for May (which is a special queen-rearing number) tells how it is done. Ask for a copy. Tested, \$1.00; untested, 75 cents. Money order office, Warrenton, N. C.

W. H. PRIDGEN,

24Atf Creek, Warren Co., N.C.
Please mention Bee Journal when writing.

DITTMER'S FOUNDATION

Wholesale
and Retail

This foundation is made by an absolutely non-dipping process, thereby producing a perfectly clear and pliable foundation that retains the odor and color of beeswax, and is free from dirt.

Working wax into foundation for cash, a specialty. Write for samples and prices.

A full line of Supplies at the very lowest prices, and in any quantity. Best quality and prompt shipment. Send for large, illustrated catalog.

GUS. DITTMER, Augusta, Wis.
Beeswax Wanted.

Please mention Bee Journal when writing.

PATENT WIRED COMB FOUNDATION

Has no Sag in Brood-Frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus

Honey.

Being the cleanest is usually work the quickest of any foundation made.

J. A. VAN DEUSEN,

Sole Manufacturer,

Sprout Brook, Montgomery Co., N.Y.

Yellow Sweet Clover Seed

WE HAVE IT AT LAST!

We have finally succeeded in getting a small quantity of the seed of the YELLOW variety of sweet clover. This kind blooms from two to four weeks earlier than the common or white variety of sweet clover. It also grows much shorter, only about two feet in height. It is as much visited by the bees as the white, and usually comes into bloom ahead of white clover and basswood. We offer the seed as a premium

A QUARTER POUND FOR SENDING ONE NEW SUBSCRIPTION.

So long as it lasts, we will mail a quarter pound of the seed to a regular paid-up subscriber who sends us ONE NEW subscriber for the American Bee Journal one year, with \$1.00; or 1/4 pound by mail for 30 cents.

We have been trying for years to secure this seed, and finally succeeded in getting it. It is new seed, gathered last season by an old personal friend of ours, so we know it is all right. But we have only a small supply. When nearly out we will mention it.

GEORGE W. YORK & CO.,

118 Michigan St., - CHICAGO, ILL.

California! If you care to know of its Fruits, Flowers, Climate or Resources, send for a sample copy of California's Favorite Paper—

The Pacific Rural Press,

The leading Horticultural and Agricultural paper of the Pacific Coast. Published weekly, handsomely illustrated, \$2.00 per annum. Sample copy free.

PACIFIC RURAL PRESS,

330 Market Street, - SAN FRANCISCO, CAL.

Please mention Bee Journal when writing.

GINSENG Seed & Plants.

Valuable book about it, telling how to grow thousands of dollars worth, what used for and who is growing it. Sent for 10c. **AMERICAN GINSENG GARDENS, ROSE HILL, New York.**

20Est Mention the American Bee Journal.

Root's Column

If you would secure a good crop of honey, you should aid the bees by providing them with

The A. I. Root Company's Weed New-Process Foundation,

which is known by these trade marks:



The Weed New-Process Foundation has been indorsed by experiment stations and agricultural colleges as well as by private individuals. Wherever it has been placed in competition with ordinary Foundation it has been found that the bees will not only take to it more quickly, but will draw it out more fully. The result is that sections containing the Weed New-Process Foundation will be filled and capped over sooner than those containing the old process.

Our Foundation is put up in pasteboard boxes holding 1, 2, 3, and 5 pounds, respectively, also in neat wooden boxes of 5, 10, 15 and 25 pound sizes. Bee-keepers will find it a great convenience to get their Foundation in these regular packages, as it is sure to reach them in first-class order. Parties who buy in considerable quantities to supply their neighboring bee-keepers will find these small pasteboard boxes a great convenience, and to such we make a special rate which we will quote on application. Our prices are as follows:

Table of Prices of Root's Weed New Process Comb Foundation.

When you order, be sure to tell which grade you want, and give price.

NAME OF GRADE.	Size and sheets per pound.	In lots of			
		1 lb	5	10	25
Medium brood	7 1/2 x 16 1/2	7 to 8	48	46	44
Light brood	7 1/2 x 16 1/2	9 to 10	50	48	46
Thin super	3 1/2 x 15 1/2	28	55	53	51
Extra thin	3 1/2 x 15 1/2	32	58	56	54

You are likely to find right in the midst of the honey harvest that you are short of Foundation. Do not lose dollars by neglect, but order a box of Root's Weed New-Process Comb Foundation at once.

You can get this Foundation promptly of any of the following dealers. Send to dealer nearest you and save heavy transportation charges.

J. M. Jenkins, Wetumpka, Elmore Co., Ala.
The L. A. Watkins Co., Denver, Colo.
George W. York & Co., 118 Mich. St., Chicago, Ill.
Vickery Bros., Evansville, Ind.
W. S. Pouder, 512 Mass. Ave., Indianapolis, Ind.
Jos. Nysewander, Des Moines, Iowa.
Carl F. Buck, Augusta, Butler Co., Kans.
Rawlings Implement Co., Baltimore, Md.
M. H. Hunt & Son, Bell Branch, Wayne Co., Mich.
Geo. E. Hilton, Fremont, Newaygo Co., Mich.
John Nebel & Son, High Hill, Mont'g Co., Mo.
C. H. W. Weber, 2146 Central Ave., Cincinnati, O.
A. F. McAdams, Columbus Grove, Putnam Co., O.
Buell Lamberson, 180 Front St., Portland, Oreg.
Prothero & Arnold, Du Bois, Clearfield Co., Pa.
Cleaver & Greene, Troy, Bradford Co., Pa.
J. H. Back & Son, 235 West 3rd North St., Salt Lake City, Utah.
The A. I. Root Co., 1024 Miss. St., St. Paul, Minn.
The A. I. Root Co., Mechanic Falls, Maine.
The A. I. Root Co., Syracuse, N. Y.
The A. I. Root Co., 10 Vine St., Philadelphia, Pa., and many other dealers.

THE A. I. ROOT CO.,
MEDINA, OHIO.

Before we sell any we must have more than we can consume on the farm, as I tell the good woman we are entitled to it as pay for all of those stings.

This spring we took from the cellar all the colonies that we put there in December. Our queens are all clipped and we expect no trouble in finding them during swarming-time. One could see a pin on the ground about the hives as there are no weeds or grass. Yellow willow afforded early feed. Swarming now begins, and of course the patient is happy.

If the Doctor and "George" would do penance just once, and go a-fishing with the patient, he would forgive them for what they did, and furthermore would furnish the bait.

"George," you go to your mailing-list, hunt up Blunk's name, and you will find a c just before the k. Knock it out, for it is silent, and no good. The old man Blunk brought that "c" over from Germany with him a long time ago, and he is a believer in short spelling, since "George" prescribes it.

I would say to "Afterthought," that my bees and strawberry bloom don't mix. I saw only one bee on the strawberry bloom, and I have kept close tab on both bees and berries.

J. P. BLUNK.

Webster Co., Iowa, May 31.

[All right, Mr. B., we have knocked that "c" out of your name on our list, and now it looks ever so much better.

Dr. Miller and "ye Editor" never have time to go fishing, sorry to say. Many thanks for your kind invitation. —EDITOR.]

Much Rain—White Clover Scarce.

We are having a great deal of rain, and bees seem to be doing well. My bees never have built up so fast as they have this spring. The hives are "boiling over" with bees and they are bringing in the honey, but I don't know where they get it, for white clover is a very scarce article in this locality.

GEORGE SAGE.

Greene Co., Ind., June 3.

Poor Prospect for White Clover.

This has been the driest spring I can remember. There are as yet no white clover heads to be seen. I called on Mr. Boardman, of Huron Co., Ohio, and he predicts no white clover this spring. Five days ago we had our first rain for this spring. I have just been out examining the roadsides and other places, and find clover coming up, but no signs of any heads as yet, however there may be some. Our bees are now working on mustard. H. G. QUIRIN.

Erie Co., Ohio, June 1.

Cause of Loss in Wintering.

Mr. Geo. H. Adkins' loss in wintering (see page 347) is undoubtedly caused by the *Bacillus milii* in a mild form. This will cause general uneasiness, and, assisted by a poor quality of honey, the result is general disaster.

In regard to handling the surplus combs, sort out all the objectionable ones part drone, and particularly those that are foul and contain the most pollen, and render into wax. There is no

Sharples Cream Separators: Profitable Dairying

California Queens.

OF PURE ITALIAN STOCK.

(THREE-BANDED.)

No other bees within a radius of TEN MILES. Eight years' experience in practical bee-keeping. Untested Queens, 90 cts. each; \$9 per doz. Discounts after July 1. Write for price-list.

18A13 H. L. WEEMS, Hanford, Calif.

Please mention Bee Journal when writing.

POULTRY BOOK FREE, 64 pages, illustrated, with 3 mos. trial subscription to our paper, 10c. INLAND POULTRY JOURNAL, Indianapolis, Ind.

EGGS

From BARRED PLYMOUTH ROCKS Thorobred, Fine Plumaged Fowls. Farm Raised—75c per dozen.

MRS. L. C. AXTELL, Roseville, Ill.

15A1f Please mention the Bee Journal.



Queen-Clipping Device Free....

The MONETTE Queen-Clipping Device is a fine thing for use in catching and clipping Queens wings. We mail it for 25 cents; or will send it FREE as a premium for sending us ONE NEW subscriber to the Bee Journal for a year at \$1.00; or for \$1.10 we will mail the Bee Journal one year

and the Clipping Device. Address,

GEORGE W. YORK & COMPANY,
118 Michigan St., Chicago, Ill.

FREE FOR A MONTH

If you are interested in Sheep in any way you cannot afford to be without the best Sheep Paper published in the United States.

Wool Markets and Sheep

has a hobby which is the sheep-breeder and his industry, first, foremost and all the time. Are you interested? Write to-day.

WOOL MARKETS AND SHEEP, CHICAGO, ILL.

QUEENS!



One Untested Queen..... \$.80
One Tested Queen..... 1.00
One Select Tested Queen 1.25
One Breeder..... 2.00
One-Comb Nucleus..... 1.00

All Queens ready to mail on receipt of the order.

Breeders are from last season's rearing.

Send for price-list of Queens by the dozen.

J. L. STRONG,

14A1f CLARINDA, Page Co., IOWA.

Please mention Bee Journal when writing



PAGE DAIRY FENCE, 9-50,

has nine horizontal wires and is 50 inches high.

PAGE WOVEN WIRE FENCE CO., ADRIAN, MICH.

Please mention Bee Journal when writing.

Rocky Mountain Bee-Plant Seed!

(*Cleome integrifolia*)

...FREE AS A PREMIUM...

The A. B. C. of Bee-Culture says of it: "This is a beautiful plant for the flower-garden, to say nothing of the honey it produces. It grows from two to three feet in height, and bears large clusters of bright pink flowers. It grows naturally on the Rocky Mountains, and in Colorado, where it is said to furnish large quantities of honey."

We have a few pounds of this *Cleome* seed, and offer to mail a 1/4-pound package as a premium for sending us ONE NEW subscriber to the American Bee Journal, with \$1.00; or 1/4 pound by mail for 40 cents.

GEORGE W. YORK & CO.

118 Michigan St., CHICAGO, ILL.

The Bee-Keeper's Guide

Or, Manual of the Apiary,

—BY—
PROF. A. J. COOK.

460 Pages—16th (1899) Edition—18th Thousand—\$1.25 postpaid.

A description of the book here is quite unnecessary—it is simply the most complete scientific and practical bee-book published to-day. Fully illustrated, and all written in the most fascinating style. The author is also too well-known to the whole bee-world to require any introduction. No bee-keeper is fully equipped, or his library complete, without THE BEE-KEEPERS' GUIDE.

This 16th and latest edition of Prof. Cook's magnificent book of 460 pages, in neat and substantial cloth binding, we propose to GIVE AWAY to our present subscribers, for the work of getting NEW subscribers for the American Bee Journal.

Given for TWO New Subscribers.

The following offer is made to PRESENT subscribers only, and no premium is also given to the two NEW subscribers—simply the Bee Journal for one year:

Send us TWO NEW SUBSCRIBERS to the Bee Journal (with \$2.00), and we will mail you a copy of Prof. Cook's book FREE as a premium. Prof. Cook's book alone sent for \$1.25, or we club it with the Bee Journal for a year—both for only \$1.75. But surely anybody can get only TWO NEW SUBSCRIBERS to the Bee Journal for a year, and thus get the book as a premium. Let every body try for it. Will YOU have one?

GEORGE W. YORK & CO.,
118 Michigan Street, CHICAGO, ILL.

BY RETURN MAIL.

Golden Beauty Italian Queens,
Reared from imported mothers.

Untested, 50 cts.; 12 Untested, \$5.50; Tested, \$1.
J. S. TERRAL & CO., Lampasas, Texas.
18Atf Please mention the Bee Journal.

use in trying to save more than the bees you have can use this season, as there is and will be danger in using them.

Should you not be able to extract the honey, owing to its granulating, cut it out by itself, and when rendering your wax run it by itself, running it into a tall receptable like our sap buckets, when, if you are careful about not running the water from the spout into the receptable, the wax and honey will be separated when cool. The honey can be used to stimulate brood-rearing, and is a clear gain.

Reduce all combs now in hives, that is, do not ask the bees to clean up badly smeared combs for brood-rearing, but select all those that are free from old pollen and desirable; procure a sprinkler, and purchase either gasoline or naphtha, and sprinkle thoroly. One gallon will do for 100 combs, and this instantly destroys all traces of mold, making the combs fresher, and owing to its rapid evaporation leaving no trace of the objectionable odor of petroleum products.

My fear was that the bees would object to the combs so treated. Late experiments prove quite the reverse; the queen lays freely, and as I have now the eggs hatch into the larval stage, I hope for good, even combs of brood, which I have failed to see for some time.

While perhaps I will not be able to cure a diseased apiary by this method, surely by giving them good, clean combs that will produce a good, full frame of brood each, will go a long way towards the desired end.

A few of my neighbors have lost heavily. One box-hive bee-keeper put in 250 colonies, and now has 30 hives with bees in. Another modern apiarist put in 175, and now has 25 left. His showed the same trouble as they all do. The vegetable germ in the

\$5.00 per month will pay for medical treatment for any reader of the American Bee Journal. This offer is good for 3 months ONLY—from May 1 to Aug. 1. Dr. Peiro makes this special offer to test the virtue of small price for best medical services. Reply AT ONCE.

DR. PEIRO,
34 Central Music Hall, CHICAGO.

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Bee-Supplies!

We are distributors for ROOT'S GOODS AT THEIR PRICES for southern Ohio, Indiana, Illinois, West Virginia, Kentucky, and the South.

MUTH'S SQUARE GLASS HONEY-JARS
LANGSTROTH BEE-HIVES, ETC.

Lowest Freight Rates in the country. Send for Catalog.

C. H. W. WEBER,
Successor to C. F. MUTH & SON,
2146-48 Central Ave., CINCINNATI, O.

Italian Queens \$1.00 during May and June. Nothing sent out but beautiful Queens, from our best workers. Safe arrival guaranteed. D. J. BLOCHER, Pearl City, Ill.

The Mississippi Valley Democrat

—AND—

Journal of Agriculture,

ST. LOUIS MO.

A wide-awake, practical Western paper for wide-awake, practical Western farmers, stock-raisers, poultry people and fruit-growers, to learn the science of breeding, feeding and management. Special departments for horses, cattle, hogs, sheep, poultry and dairy. No farmer can afford to do without it.

It stands for American farmers and producers. It is the leading exponent of agriculture as a business, and at the same time the champion of the Agricultural States and the producer in politics. Subscription, One Dollar a Year.

Write for Sample Copy

ARE YOU FULL OF GINGER?

If you want health and vigor, good appetite and sound sleep, take **LAXATIVE NERVO-VITAL TABLETS**, the quick and safe cure for Constipation, Nervous Dyspepsia, Insomnia, Nervous Affections, the "Blues" and all attendant evils. It aids digestion, purifies the blood, strengthens the nerves, improves the appetite, induces sweet sleep, tones up the whole system and makes you a new creature. It not only makes you feel well, it makes you really well. It gives you that vim and

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NERVO-VITAL TABLETS

It contains no narcotics nor bromides nor other injurious drugs. We give the formula with every box. You know exactly what you are taking. Originally put up for physicians' use. Ask your druggist for a

FREE SAMPLE. If he hasn't it, don't take a substitute, but send us a stamp for our

book on "Health" and we will send you a free sample, sufficient for you to try it and test its merits to your own satisfaction. Isn't it worth trying free? It positively cures. Price 10c and 25c per box. Don't delay sending.

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BEE-KEEPERS: If you want your supplies to arrive at your railroad station in neat and perfect condition, free from dirt and damage ordinarily resulting from railroad handling; and if you want your orders filled promptly with the very finest goods in the market, send to

G. B. Lewis Co., Watertown, Wis.
U. S. A.

THOUSANDS OF BEE-HIVES, MILLIONS OF SECTIONS READY FOR PROMPT SHIPMENT.

Lewis Foundation Fasteners are selling like hot-cakes. Customers who have received one of these new machines pronounce it the finest, and write us that it is worth more than our price, which is only **ONE DOLLAR**, without lamp.

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G. B. Lewis Co., 515 First Ave., N. E., Minneapolis, Minn.

AGENCIES:
L. C. WOODMAN, Grand Rapids, Mich.
FRED FOULGER & SONS, Ogden, Utah.
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Special Southwestern Agent.

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FREE OX-BLOOD TABLETS FOR THIN PEOPLE.
Disease. 3 weeks' treatment free for 10 cents postage.
Look for our ad on this page next week.
W. A. HENDERSON CO.,
18 E 21st, Masonic Building, Des Moines, Iowa.
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Our specialty is making **SECTIONS** and they are the best in the market. Wisconsin **BASSWOOD** is the right kind for them. We have a full line of **BEE-SUPPLIES**. Write for free illustrated catalog and price-list.

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ALBINO QUEENS If you want the most prolific Queens—If you want the gentlest Bees—If you want the best honey-gatherers you ever saw—try my Albinos. Untested Queens in April, \$1.00; Tested, \$1.50.
12A2st **J. D. GIVENS, LISBON, TEX.**

Queens

21A1f Address, E. W. HAAQ, Canton, Ohio.

UNTESTED ITALIAN, 70 cents each; tested, \$1 each. Queens large, yellow and prolific. Circular free.

The Novelty Pocket-Knife.

Your Name and Address on one side—Three Bees on the other side.



[THIS CUT IS THE FULL SIZE OF THE KNIFE.]

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the subscriber, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring-steel, and the finish of the handle as described above. It will last a last-time, with proper usage.

Why Own the Novelty Knife? In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address, would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET-KNIFE will serve as an identifier; and in case of death, your relatives will at once be notified of the accident.

How appropriate this knife is for a present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, or a lady to a gentleman, the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

How to Get this Valuable Knife.—We send it postpaid for \$1.10, or give it as a Premium to the one sending us **THREE NEW SUBSCRIBERS** to the Bee Journal (with \$3.00.) We will club the Novelty Knife and the Bee Journal for one year, both for \$1.90.

GEORGE W. YORK & CO., 118 Mich. St., Chicago, Ill.

Please allow about two weeks for your knife order to be filled.

Please Mention the Bee Journal when writing Advertisers.

pollen entering the very structure of the bee, as well as sapping the vitality of the larva, is giving us a bee that can not stand protracted cold weather. I put in 120 colonies, and have lost and doubled up until now I have 70 left. These will be built up by giving cleansed combs as fast as needed.

C. G. FERRIS.

Herkimer Co., N. Y., June 1.



Producing Honey Without Any Swarming.—Mr. B. F. Blakely, Jr., of Kansas, writes how he manages in producing both comb and extracted honey, and at the same time avoids swarming. When the hive is full of bees, honey and brood, and the honey-flow begins, he removes all of the brood-combs except about four that contain the greatest amount of brood. These are alternated with frames containing strips of foundation for starters, and the super put on the hive. No bees are taken from the hive, they being shaken off the combs that are removed. A colony treated in this way works and acts very much like a swarm. The removed combs are given to the colonies that are worked for extracted honey, these colonies sometimes being piled up four stories high. In short, this is a peculiar system of division, if such it may be called, in which the comb-honey colonies are robbed of so much of their brood, at exactly the right time, that swarming is prevented; while the brood is placed in colonies so worked for extracted honey that they do not swarm. It is a peculiar system, and one that requires the production of both comb and extracted honey.—Bee-Keepers' Review.

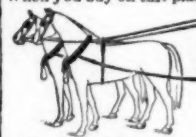
Rendering Beeswax by Steam.

The process is thus given in detail by the editor of *Gleanings in Bee-Culture*:

About rendering by steam, we find no trouble along that line. We run a jet down into our tank, and let it snap for half an hour. But there is perhaps one thing that we do that Mr. H. does not, and therein lies the trouble. I would advise him to place about two pailfuls of water into a barrel holding about 31 gallons. If it is of the 50-gallon size, then use three pailfuls. Into the water pour from one-half to one pound of commercial sulphuric acid, such as can be bought at any drug-store—that is, providing the wax is very dark. If the wax is of a leather color, and it is desired to bring it to a lemon color, put in only about 4 ounces of the acid. Turn a jet of steam down into the water, using a common half-inch steam-pipe. Let it snap until the water is hot, and then add the chunks of wax gradually until the barrel is nearly full of melted wax and water. Allow it to snap for a few minutes, seeing that the water, acid and wax are thoroly mixt. Remove the steam-pipe, put the lid on the barrel, and cover the whole with old blankets, old carpets, or any old thing that will help to confine the heat in the barrel, keeping the wax in a liquid condition as long as possible. At the end of three

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We manufacture 178 styles of vehicles and 65 styles of harness and sell them to you direct from our factory at wholesale prices. In fact, we are the largest manufacturers of vehicles and harness in the world selling to the consumer exclusively. When you buy on this plan you pay only the profit of the manufacturer. No traveling expenses, no losses, no agent's commission and no dealer's profit.



No. 130—Double Buggy harness, with nickel trimmings. Complete with collars and hitch straps, \$23. Good as sells for \$30. And steel, good paint and varnish, traded catalogue FREE.

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preferring to deal with you direct. We have followed this plan for 27 years. No matter where you live, we can reach you and save you money. We ship our vehicles and harness anywhere for examination and guarantee safe arrival. We manufacture everything we sell. And we can assure you of good quality from beginning to end; good wood work, good iron work, good finish, good trimmings, fine style and the largest selection in the land. Large illustrated catalogue FREE.



No. 717—Canopy-Top Surrey, with double fenders. Price, complete, with curtains all around, storm apron, sunshade, lamps and pole or shafts, \$75; just as good as sells for \$40 more.

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Please mention Bee Journal when writing.

I. J. Stringham, 105 Park Place, New York City.

Keeps in stock a full line of POPULAR BEE-KEEPERS' SUPPLIES.
Silk-faced Veils, 35 cents. postpaid.
Tested Italian Queens, \$1.00; Untested Queens, 60 cents. From honey-gathering stock.
We keep in stock a full line of Popular Apian Supplies.
Catalog FREE.

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H. G. Quirin, the QUEEN-BREEDER, is as usual again on hand with his improved strain of

Golden Italian Queens

Our largest orders come from old customers, which proves that our stock gives satisfaction. There is no bee-disease in our locality. We have 12 years' experience in rearing queens, and if there is any one thing we pride ourselves in, it is in sending all queens promptly BY RETURN MAIL. We guarantee safe delivery.
Price of queens before July 1st:

	1	6	12
Warranted as queens average	.75	\$ 4.25	\$ 8.00
Selected, warranted	1.00	5.00	9.50
Tested	1.50	8.00	15.00
Selected tested	2.00	10.50	
Extra selected tested, the best that money can buy	4.00		

Address all orders to
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MARQUETTE, ON LAKE SUPERIOR,

is one of the most charming summer resorts reached via the Chicago, Milwaukee & St. Paul Railway.

Its healthful location, beautiful scenery, good hotels and complete immunity from hay fever, make a summer outing at Marquette, Mich., very attractive from the standpoint of health, rest and comfort.

For a copy of "The Lake Superior Country," containing a description of Marquette and the copper country, address, with four (4) cents in stamps to pay postage, Geo. H. Heafford, General Passenger Agent, Chicago, Ill.



has a golden tinge. This offer is made only to our present regular subscribers.

NOTE.—One reader writes: "I have every reason to believe that it would be a very good idea for every bee-keeper to wear one [of the buttons] as it will cause people to ask questions about the busy bee, and many a conversation thus started would wind up with the sale of more or less honey; at any rate, it would give the bee-keeper a superior opportunity to enlighten many a person in regard to honey and bees."

Prices of Buttons alone, postpaid: One button, 8 cts.; 2 buttons, 6 cts. each; 5 or more, 5 cts. each. (Stamps taken.) Address,

GEORGE W. YORK & CO., 118 Michigan St., CHICAGO.

Finely marked—

Italian Queens

from freshly imported NEW stock. By mail, price, \$1. Address all orders to

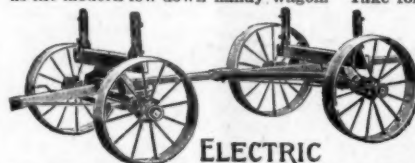
WILLIAM DELINE,

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WYMORE, NEBRASKA.

Labor Saving Conveniences.

Success on the farm today is largely proportioned to the saving of time and labor—which means economy of production—and not higher prices for farm products. Probably no single machine or appliance saves in the aggregate so much time and hard labor as the modern low down handy wagon. Take for



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instance the loading and hauling of manure, ensilage corn, grain in the straw, corn fodder, hay, &c., all hard to load, the use and advantages of a low down wagon are almost inestimable. The Electric Low Down Handy Wagon excels for these purposes. Has the famous Electric steel wheels is light, strong and durable. Write Electric Wheel Co., Box 16 Quincy, Ill., for catalog.
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SELL ROOT'S GOODS AT ROOT'S PRICES. Our inducements are first-class goods, cheap freight rates, and prompt shipments. Send for catalog.

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Adel Queens, \$1 Each.

Send postal for dozen rates and description of bees. HENRY ALLEY, Wenham, Mass.
23A1f Mention the American Bee Journal.

or four hours, or longer if possible, dip off the wax from the top, a dipperful at a time.

I omitted to state that the wax, as fast as dipt off, should be placed in tin pans or pails that have been greased. After the wax cools, turn the pails bottom up, and, presto! you will find nice yellow cakes of wax. If, perchance, they are too leather-colored yet, next time use a little more acid; but do not use more than is necessary.

In cleaning tin utensils, never scrape, for that will remove the tin, and the iron, or steel, rather, will rust. To get the wax off, turn a jet of hot steam right against the inside of the pails or pans used. This will disengage every particle of wax used.

If one does not have steam he can use an ordinary iron kettle, being careful to observe about the quantity of acid and water. The vinegar, for such it really is, will be so weak that it will not attack the iron enough to cause any serious trouble.

Discoloring of Comb-Cappings.—I have always understood the appearance of comb honey is the production of certain strains of bees—the Asiatic varieties tending very much that way. In the same apiaries some colonies produce more or less greasy-looking capping to their comb. The dark races of bees cap their honey with white caps. The goldens do not produce so white a capping as the black bee. The Lignarian produces honey more greasy in appearance, and the Holy Land bees very greasy. Such has been my experience, but in all apiaries of colored bees the capping varies. Is that caused by weather or the strain of bees? Have you ever noticed that sections over the center of the brood have a more greasy appearance than those to one side? What is the cause?—Australasian Bee-Keeper.

A Bunch of Stray Straws, by Dr. Miller, in Gleanings in Bee-Culture:

George G. Scott takes up half a column of the American Bee Journal in saying that hive-tools and other things likely to be lost should be painted a brilliant red. The advice is worth all the room he has taken.

The membership of the National Bee-Keepers' Association is a little more than 500. It's sad that it's so small; but there's encouragement in the thought that never before were so many bee-keepers banded together in one body in this country. And the number is all the time growing.

Two mysteries in connection with finding queens. You look very, very carefully all over a comb, and the queen is not to be seen; but suddenly she appears, calmly walking right before your eyes. Where or how she was hidden is the mystery. Another mystery is that often a queen is harder to find in a mere handful of bees than in a strong colony.

The age at mating of 30 queens is given in Bienen-Vater. It varied from 4 to 9 days, the largest number being at 6 days, and the average of all being 6½ days. [I once conducted a series of experiments, and, if I remember correctly, the average date seemed to be 7 days, and the earliest 3 days; but in this case I had reason to suspect the queen had been confined in the cell by

the bees after the regular day for hatching.—ED.]

John R. Millard gets some sound instruction on page 352. The problem being to get a stock of drones from a choice young queen, this might be worth trying: Add brood from other colonies so as to get the young queen's colony very strong. Then have plenty of drone-comb in one or two of the central combs. As soon as the queen fills these drone-cells, take the comb and give to another colony, and replace with fresh drone-comb as fast as taken away.

In working bees from other frames to dovetail frames, one way is to put the hive with brood over the dovetail hive, an excluder between, the queen below. But the queen is very slow about laying, apparently thinking she ought to get above to lay. A better way is to brush all bees from the old comb into the new hive, and put the beeless brood over another strong colony with excluder. If desired, this brood may be put back over its original queen 10 days later.

Equalizing colonies is all wrong. And it's all right. Depends. In the spring, take two colonies, one with three frames filled with brood, the other with enough brood in three frames to make one full frame. Take a frame full of brood from the strong and give to the weak, and you have equalized the brood. Three weeks later there will not be as much brood in the two hives as if you had let them alone. But let them alone till the stronger has 6 or 8 frames of brood, and then you will gain by equalizing. The secret of it is that a colony with brood enough to fill only one frame full stands nearly still, while one with 3 or 4 frames booms right along.

Doolittle talks sense when he favors leaving queen-cells and young queens with the bees from start to finish. And he will probably agree that for the best results it is desirable that the cells be in a strong colony at least till they are sealed, and that it is at least a little better that the young queen be in a strong nucleus till she lays. We are not likely to reach the time when good queens can be reared for nothing.—[I have said a good deal in favor of bees for business, and have rather decried the evident rage for color, which rage now seems to have all but died out. Would it not be well to talk about high-priced queens? One reared by the most approved plans in a strong colony, under the swarming-impulse, or same impulse brought on artificially by feeding, ought to be worth twice as much as one reared in the old-fashioned method in a queenless colony without feeding—a method that is apt to result in small, inferior queens.—ED.]

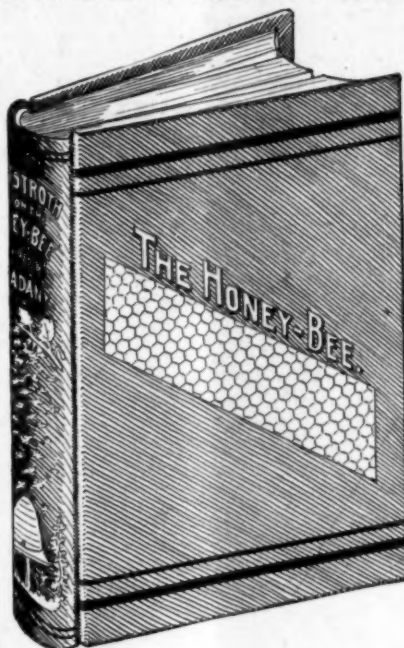
Have you tried the French way of using the Porter escape? Instead of having the escape open into the hive below, have it open *outside*, in front, above the hive. One advantage claimed is that you can see if the springs of the escape do not work exactly right. [This method is all right under some conditions. H. R. Boardman has practiced it for years, and I do not know but he is using it now. It has the advantage, according to Mr. Boardman, of getting the bees out of the supers a little quicker, because the bees work

toward bright daylight. The young bees that happen to be in the supers come out in front of the hive, and naturally find the entrance, so none are lost; but as a general rule Porter escapes are put on at night between brood-nest and sections, and the next morning the supers are *supposed* to be free of bees; but according to my experience they are not *always* thus freed, for I have found anywhere from 30 to 40 bees in the super next morning. I suppose H. R. Boardman, by his plan, induces the bees to leave earlier, with the result that the work is accomplished in less time, and more thoroly. It might be well to try this matter this coming season.—ED.]

Langstroth on... The Honey-Bee

Revised by Dadant—1899 Edition.

This is one of the standard books on bee-culture, and ought to be in the library of every bee-keeper. It is bound substantially in cloth, and contains over 500 pages, being revised by those large, practical bee-keepers, so well-known to all the readers of the Ameri-



can Bee Journal—Chas. Dadant & Son. Each subject is clearly and thoroly explained, so that by following the instructions of this book one cannot fail to be wonderfully helped on the way to success with bees.

The book we mail for \$1.25, or club it with the American Bee Journal for one year—both for \$1.75; or, we will mail it as a premium for sending us THREE NEW subscribers to the Bee Journal for one year, with \$3.00.

This is a splendid chance to get a grand bee-book for a very little money or work.

GEORGE W. YORK & CO.
118 Michigan Street, CHICAGO, ILL.

HONEY AND BEESWAX

MARKET QUOTATIONS.

CHICAGO, June 8.—Not any new comb honey has appeared on the market, but it would sell at 15 cents, as there is a demand for it that can't be supplied for some time hence.

Extracted from the Southern States is coming forward quite freely, but is not active and prices are lower. White sells at 6½¢@7¢; amber, 6¢@6½¢; dark grades, 5¢@5½¢. Beeswax, 27¢ for prime.

R. A. BURNETT & CO.

KANSAS CITY, May 9.—We quote: No. 1 white comb, 14¢@15¢; No. 1 amber, 12¢@14¢; No. 2 white and amber, 13¢@13½¢. Extracted, white, 7½¢@8¢; amber, 7¢. Beeswax, 22¢@25¢.

The receipts and stock of honey on hand are light; demand fair.

C. C. CLEMENS & CO.

DETROIT, May 24.—Fancy white comb, 15¢@16¢; No. 1, white, 14¢@15¢; amber and dark, 10¢@12¢. Extracted, white, 7¢; amber and dark, 5¢@6¢. Beeswax, 25¢@26¢.

Supply and demand for honey both limited.

M. H. HUNT & SON.

NEW YORK, May 21.—Our market is practically bare of comb honey, and there is a good demand for white at from 13¢@15¢ per pound, according to quality and style of package. The market on extracted is rather quiet, and inactive. New crop is slow in coming in, and prices have not yet been established. Beeswax holds firm at 27¢@28¢.

HILDRETH & SEGELKEN.

SAN FRANCISCO, May 29.—White comb, 11½¢@12½¢; amber, 8¢@10¢. Extracted, white, 7¢@7½¢; light amber, 6½¢@7¢; amber, 5¢@5½¢; Beeswax, 26¢@27¢.

Moderate quantities of new crop are coming forward, mostly amber extracted from the San Joaquin. Altho supplies of old honey are about exhausted, demand for new does not appear to be very active or urgent. Sales of new amber extracted have been mainly within range of 6½¢@7¢, little commanding over 6½¢ in anything like a wholesale way.

TEXAS.—The Central Texas Bee-Keepers' Association convenes in seventh annual convention, at Hutto, Tex., July 12 and 13, 1900. All are cordially invited to attend. Excursion rates, and no hotel bills to pay.

Hunter, Tex. LOUIS SCHOLL, Sec.

The Emerson Binder

This Emerson stiff-board Binder with cloth back for the American Bee Journal we mail for but 60 cents; or we will send it with the Bee Journal for one year—both for only \$1.40. It is a fine thing to preserve the copies of the Journal as fast as they are received. If you have this "Emerson" no further binding is necessary.

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Smokers, Sections,
Comb Foundation
And all Apian Supplies
cheap. Send for
FREE Catalogue. E. T. FLANAGAN, Belleville, Ill.

Bee-Keepers' Photograph.—We have now on hand a limited number of excellent photographs of prominent bee-keepers—a number of pictures on one card. The likeness of 49 of them are shown on one of the photographs, and 121 on the other. We will send them, postpaid, for 30 cts. a card, mailing from the 121 kind first; then after they are all gone, we will send the 49 kind. So those who order first will get the most "faces" for their money. Send orders to the Bee Journal office.

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Our Falcon Sections and New Process Foundation are ahead of everything, and cost no more than other makes. New Catalog and copy of THE AMERICAN BEE-KEEPER free. Address,

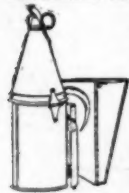
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made of sheet-brass which does not rust or burn out should last a life-time. You need one, but they cost 25 cents more than tin of the same size. The little pen cut shows our brass hinge put on the three larger sizes. No wonder Bingham's 4-inch Smoke Engine goes without puffing and does not



DROP INKY DROPS.

The perforated steel fire-grate has 381 holes to air the fuel and support the fire.

Prices; Heavy Tin Smoke Engine, four-inch Stove, per mail, \$1.50; 3½-inch, \$1.10; three-inch, \$1.00; 2½-inch, 90 cents; two-inch, 65 cents.

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are the original, and have all the improvements, and have been the STANDARD OF EXCELLENCE for 22 years. Address,

T. F. BINGHAM,
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To say to the readers of the BEE JOURNAL that DOOLITTLE... has concluded to sell QUEENS in their season during 1900, at the following prices:

- 1 Untested Queen .. \$1.00
- 3 Untested Queens.. 2.25
- 1 Tested Queen 1.25
- 3 Tested Queens.... 3.00
- 1 select tested queen 1.50
- 3 " " Queens 4.00
- Select Tested Queen, last year's rearing, 2.50
- Extra selected breeding, the very best.. 5.00

Circular free, giving particulars regarding each class of Queens, conditions, etc. Address,

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11A26t Borodino, Onondaga Co., N. Y.

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23rd Year Dadant's Foundation. 23rd Year

Why does it sell
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Because it has always given better satisfaction than any other. Because in 23 years there have not been any complaints, but thousands of compliments.



We guarantee
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What more can anybody do? BEAUTY, PURITY, FIRMNESS, No SAGGING, No LOSS. PATENT WEED PROCESS SHEETING.

Send name for our Catalog, Samples of Foundation and Veil Material. We sell the best Veils, cotton or silk.

BEE-KEEPERS' SUPPLIES OF ALL KINDS.

Langstroth on the Honey-Bee, Revised.

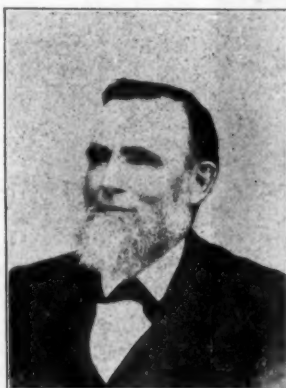
The Classic in Bee-Culture—Price, \$1.25, by Mail.

Beeswax Wanted
at all times.

CHAS. DADANT & SON,

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Hamilton, Hancock Co., Ill.



DR. MILLER'S Honey Queens

One Untested Queen Free as a Premium
for sending ONE New Subscriber
to the American Bee Journal
for one year.

We have been fortunate in making an arrangement with DR. C. C. MILLER—the well-known honey-specialist—to rear queens EXCLUSIVELY FOR US DURING THE

SEASON OF 1900. These Queens will be mailed in rotation, beginning about June 10, so "first come first served." We are ready to book orders now.

The Queens Dr. Miller will send out on our orders will be precisely the same as those he rears for his own use, so of course they will be from his best stock. His best colony in 1899 had a queen reared in 1898; May 5, 1899, it had brood in 4 frames, and he gave it at that time a frame of brood without bees. It had no other help, but May 25 a frame of brood with adhering bees was taken from it, and the same thing was repeated June 3, leaving it at that time 5 frames of brood. It stored 178 sections of honey, weighing 159 pounds (and that after July 20, in a poor season), being 2½ times the average yield of all his colonies. A point of importance is the fact this colony did not swarm, and an inspection every week or 10 days showed that at no time during the entire season was there even so much as an egg in a queen-cell. Dr. Miller expects to rear queens from this one during the coming summer.

The demand nowadays is for BEES THAT GET THE HONEY when there is any to get, and Dr. Miller has such bees. You will want to have a queen from his best, we are sure, even if she is not pure Italian.

Do not send any orders to Dr. Miller, as all orders MUST come thru us, according to our agreement.

Remember, send us \$1.00 for ONE NEW SUBSCRIBER to the American Bee Journal for one year, and YOU will get ONE OF DR. MILLER'S UNTESTED HONEY-QUEENS FREE AS A PREMIUM. This offer is made only to our present regular subscribers. Orders for queens to be filled in rotation, beginning about June 10.

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